CERTIFICATE

By Authority Of
THE UNITED STATES OF AMERICA
Legally Binding Document

By the Authority Vested By Part 5 of the United States Code § 552(a) and Part 1 of the Code of Regulations § 51 the attached document has been duly INCORPORATED BY REFERENCE and shall be considered legally binding upon all citizens and residents of the United States of America. ***HEED THIS NOTICE***: Criminal penalties may apply for noncompliance.

This Document Posted By
Public.Resource.Org, Inc.,
a California Nonprofit
Organization.

Not Affiliated Or
Authorized by ASTM
or by the United States
Government

Document Name: ASTM C32: Standard Specification for Sewer and Manhole Brick

CFR Section(s): 24 CFR 200, Subpart S

Standards Body: American Society for Testing and Materials

Official Incorporator:

THE EXECUTIVE DIRECTOR
OFFICE OF THE FEDERAL REGISTER
WASHINGTON, D.C.

ASTM Logo
Removed

Designation: C 32 – 73

American National Standard A 100.1
American National Standards Institute

Standard Specification for

SEWER AND MANHOLE BRICK (MADE FROM CLAY OR SHALE)

This Standard is issued under the fixed designation C32; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval.

1. Scope

1.1 This specification covers brick made from clay or shale and burned, intended for use in (*1*) drainage structures for the conveyance of sewage, industrial wastes, and storm water, and (*2*) related structures such as manholes and catch basins.

1.1.1 *Sewer Brick:*

1.1.1.1 *Grade SS*—Brick intended for use in structures requiring low absorption and resistance to the action of sewage carrying large quantities of abrasive material at velocities exceeding 8 ft (2.4 m)/s.

1.1.1.2 *Grade SM*—Brick intended for use in structures requiring resistance to the action of sewage carrying abrasive materials at velocities less than 8 ft/s.

1.1.2 *Manhole Brick:*

1.1.2.1 *Grade MS*—Brick intended for use in manholes and catch basins not requiring high degrees of abrasive resistance but where a high and uniform degree of resistance to frost action and disintegration is needed when the brick may be frozen when permeated with water.

1.1.2.2 *Grade MM*—Brick intended for use in manholes not requiring high degrees of abrasive resistance but where a moderate and nonuniform degree of resistance to frost action and disintegration is needed when the brick may be permeated with water.

NOTE 1—The values stated in U.S. customary units are to be regarded as the standard. The metric equivalents of U.S. customary units may be approximate.

2. Physical Requirements

2.1 Brick for sewer or drainage structures shall conform to the physical requirements for the specified Grades SS or SM as established in Table 1.

2.2 Brick for manholes, catch basins, and other related structures shall conform to the physical requirements for the specified Grades MS or MM as established in Table 1.

2.3 Unless otherwise specified by the purchaser, brick of Grade SS shall be accepted instead of Grade SM; also Grade MS shall be accepted instead of Grade MM.

2.4 Unless otherwise specified in the invitation for bids, brick shall be either solid or cored at the option of the seller. The net cross-sectional area of cored brick in any plane parallel to the bearing surface shall be at least 75 percent of the gross cross-sectional area measured in the same plane. No part of any hole shall be less than $^3/_4$ in. (19 mm) from any edge of the brick.

3. Dimensions and Permissible Variations

3.1 The size of the brick shall be specified by the purchaser, selecting any of the standard sizes of building brick.

3.2 For any lot of sewer brick furnished under this specification, not more than 2 percent of the brick shall vary from the nominal size requirements specified in 3.1 by more than $\pm ^1/_8$ in. (3 mm) in either transverse dimension, or by more than $\pm ^1/_4$ in. (6 mm) in

---

[1] This specification is under the jurisdiction of ASTM Committee C-15 on Manufactured Masonry Units and is the direct responsibility of Subcommittee C15.02 on Clay Brick and Structural Clay Tile.

Current edition approved June 18, 1973. Published August 1973. Originally published as C 32 – 21 T. Last previous edition C 32 – 69.

length.

4. Inspection

4.1 The brick, as delivered to the site, shall conform by visual inspection to the requirements specified by the purchaser or to the sample or samples approved as standard of comparison and to the samples passing the tests for physical requirements. Minor indentions and surface cracks incidental to the usual methods of manufacture, or the small chipping resulting from the customary methods of handling in shipment and delivery, should not be deemed grounds for rejection.

4.2 Brick shall be of rectangular cross section with substantially straight edges and square corners.

4.3 Kiln marks or depressions not exceeding $^3/_{16}$ in. (5 mm) in depth shall be permitted on the backside of the brick.

5. Finish and Appearance

5.1 Sewer brick shall have plain or smooth surfaces on both ends and on the face side.

5.2 Manhole brick shall have plain, slightly, or moderately textured surfaces.

6. Sampling and Testing

6.1 For test purposes brick that are representative of the commercial product shall be selected by a competent person appointed by the purchaser, the place or places of selection to be designated when the purchase order is placed. The manufacturer or the seller shall furnish specimens for tests without charge.

6.2 Brick shall be sampled and tested in accordance with ASTM Methods C 67, Sampling and Testing Brick.[2]

---

[2] *1974 Annual Book of ASTM Standards*, Part 16.

TABLE 1 Physical Properties

Designation	Minimum Compressive Strength, Average Gross Area, psi (kgf/cm^2)		Maximum Water Absorption by 5-h Boiling, Percent	
	Av of 5 Brick	Individual	Av of 5 Brick	Individual
Sewer brick:				
Grade SS	8000 (560)	6000 (420)	6.0	9.0
Grade SM[a]	5000 (350)	3750 (263)	12.0	15.0
Manhole brick:				
Grade MS[a]	3000 (210)	2500 (175)	17.0	20.0
Grade MM[b]	2500 (175)	2200 (154)	22.0	25.0

[a] Where a high and uniform degree of resistance to frost action in the presence of moisture is required, Grades SM and MS shall conform to the additional requirement that the saturation coefficient (C/B), that is, ratio of absorption by 24-h submersion in cold water to that after 5-h submersion in boiling water, shall not exceed 0.80. If the average compressive strength is greater than 8000 psi or the average water absorption is less than 8.0 percent after 24-h submersion in cold water, the requirement for saturation coefficient shall be waived.

[b] Maximum saturation coefficient for Grade MM brick shall not exceed 0.90.

By publication of this standard no position is taken with respect to the validity of any patent rights in connection therewith, and the American Society for Testing and Materials does not undertake to insure anyone utilizing the standard against liability for infringement of any Letters Patent nor assume any such liability.